

**A METHOD AND APPARATUS FOR DOMAIN TRANSFORMATION**  
**MULTIPLE SIGNAL PROCESSING**

**Abstract**

The invention includes an Ethernet transceiver. The Ethernet transceiver includes a plurality of digital signal streams, at least one digital signal stream is coupled to another of the digital signal streams. A transform block transforms a plurality of the digital signal streams from an original domain into a lower complexity processing domain. A processor for joint processes the transformed digital signal streams, each joint processed digital signal stream is influenced by other digital signal streams. An inverse transform block inverse transforms the joint processed signal streams back to the original domain. Another embodiment of the invention includes a method of joint processing a plurality of digital signal streams. A first act of the method includes transforming a plurality of the digital signal streams from an original domain into a lower complexity processing domain. A second act of the method includes joint processing of the transformed digital signal streams, each joint processed digital signal stream being influenced by characteristics of other digital signal streams. A third act includes inverse transforming the joint processed signal streams back to the original domain.